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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/28/2001

Sean B. Simmons

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06/14/2005

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EXAMINER

PERILLA, JASON M

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/996,119

Applicant(s)

SIMMONS ET AL.

Examiner

Jason M. Perilla

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-12,17-19 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 2-7,13-16 and 21-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-28 are pending in the instant application.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on September 11, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

3. Claims 1-16 are objected to because of the following informalities:

Regarding claim 1, in line 5, "a input signal" should be replaced by --an input signal--.

Regarding claim 5, in lines 3-4, "the receiver" is lacking antecedent basis.

Regarding claim 10, in line 11, "the end of the input signal" is lacking antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 9, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Critchlow (US 5276706).

Regarding claim 1, Critchlow discloses by figure 1 a synchronization (sync) signal detector comprising: a) a sync signal generator (36) for generating a reference sync signal (38); b) a sampler (37) connected to the sync signal generator; c) a waveform correlator (30) connected to the sampler, the waveform correlator receiving a input signal (32 & 34); and d) a peak detector (44) connected to the waveform correlator and the sampler. As broadly as claimed, the pattern rotator of Critchlow is considered to be a sampler because it outputs various samples of the synchronization pattern that have been incrementally rotated (col. 7, lines 10-15).

Regarding claim 9, Critchlow discloses the limitations of claim 1 as applied above. Further, Critchlow discloses that the sync signal detector is implemented in a cellular telephone or communications system (abstract).

Regarding claim 17, Critchlow discloses the limitations of the claim as applied to claim 17 above.

6. Claims 10-12, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Puckette (US 3654390).

Regarding claim 10, Puckette discloses a process for detecting a synchronization (sync) signal within an input signal (abstract), said process comprising the steps of: a) generating a version of the sync signal (fig. 1, ref. 12); b) correlating the sync signal (fig. 2, ref. 15) with the input signal (fig. 2, ref. 10) to generate a correlation signal (fig. 2, output of 26); c) detecting a correlation peak in the correlation signal (fig. 2, ref. 27); d) estimating a timing offset (col. 3, lines 12-17) based on the correlation peak for use by step (figs. 1 & 2, ref. 28) a); e) repeating step a) to generate a shifted version of the

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sync signal (fig. 1, ref. 13) using the timing offset (figs. 1 & 2, ref. 28) estimated in step d); and f) further processing the input signal based on the shifted version of the sync signal until the end of the input signal (col. 3, lines 17-25).

Regarding claim 11, Puckette discloses the limitations of claim 10 as applied above. Further, Puckette discloses between steps e) and f), determining and outputting synchronization information (fig. 1, ref. 14; col. 2, lines 41-44).

Regarding claim 12, Puckette discloses the limitations of claim 10 as applied above. Further, Puckette discloses that step a) consists of generating the sync signal utilizing a known timing offset because the timing offset is determined according to the phasing circuit (fig. 1, ref. 13) as disclosed (col. 2, line 40).

Regarding claim 18, Puckette discloses the limitations of the claim as applied to claim 10 above.

Regarding claim 19, Puckette discloses the limitations of the claim as applied to claim 11 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Critchlow in view of Thomas et al (US 5754603; hereafter "Thomas").

Regarding claim 8, Critchlow discloses the limitations of claim 1 as applied above. Critchlow does not explicitly disclose that the waveform correlator and peak detector are implemented in a digital signal processor (DSP). However, Thomas teaches that a digital signal processor (DSP) can be utilized to easily implement correlation steps (col. 2, lines 35-40). In the method of Thomas, correlation is performed by a DSP (fig. 1, ref. 28). One skilled in the art is aware that a DSP can be utilized to execute computer readable program code to implement the steps of a correlation easily as taught by Thomas. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a DSP as taught by Thomas for carrying out correlation and peak detection in the device of Puckette because the DSP provides an easy implementation of the device.

9. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puckette in view of Thomas.

Regarding claim 25, Puckette discloses the steps of: a) matching a data pattern (fig. 1 & 2, ref. 10) to a known sync pattern (fig. 1, refs. 12, 15) using waveform correlation (fig. 1, ref. 11); b) shifting the known sync pattern (fig. 1, ref. 13) by a timing offset (fig. 1, ref. 28) determined from the waveform correlation (fig. 2, ref. 28) to create a shifted sync pattern; and c) utilizing the shifted sync pattern to further process the input signal as further applied to claim 10 above. Puckette does not explicitly disclose that the steps are performed according to computer readable medium containing instructions to perform the steps. However, Thomas teaches that a digital signal processor (DSP) can be utilized to easily implement correlation steps (col. 2, lines 35-

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40). In the method of Thomas, correlation is performed by a DSP (fig. 1, ref. 28). One skilled in the art is aware that a DSP can be utilized to execute computer readable program code to implement the steps of a correlation easily as taught by Thomas. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a DSP using computer readable instructions for carrying out the correlation steps of Puckette because the instructions provide an easy implementation of the steps.

Regarding claim 26, Puckette in view of Thomas disclose the limitations of claim 25 as applied above. Further, in the method of Puckette in view of Thomas, the steps are implemented in a DSP as applied in claim 25.

10. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puckette in view of Thomas, and in further view of Poulbere et al (US 6785350; hereafter "Poulbere").

Regarding claim 27, Puckette in view of Thomas disclose the limitations of claim 27 as applied to claim 25 above. That is, Puckette discloses the functions a), b) and c) and Thomas teaches that the functions of Puckette may be advantageously performed via a DSP comprising computer software code. Additionally, Thomas discloses a receiver (fig. 1, ref. 20) configured to receive communications signals which are correlated by the DSP (fig. 1, ref. 28) and, likewise, the device of Puckette must, for utility, comprise a receiver for receiving the received signal (fig. 1, ref. 10). The device of Puckette in view of Thomas does not explicitly disclose a transmitter to transmit communications signals. However, Poulbere teaches a communications device having

both a receiver (fig. 1, ref. 22) and a transmitter (fig. 1 ref. 26). In the device of Poulbere, data may be received and transmitted which is advantageous, as understood by one having ordinary skill in the art, because two way communication may be performed. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize a transmitter as taught by Poulbere with the device of Puckette in view of Thomas because two way communication would be available.

Regarding claim 28, Puckette in view of Thomas, and in further view of Poulbere disclose the limitations of claim 27 as applied above. Further, Thomas discloses that the device is utilized in a spread spectrum cellular digital communications system (col. 1, lines 10-13).

Allowable Subject Matter

11. Claims 2-7, 13-16, and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not applied above is cited to further show the state of the art with respect to synchronization detectors.

U.S. Pat. No. 4203002 to Nossen.

U.S. Pat. No. 4414676 to Kraul et al.

U.S. Pat. No. 5574754 to Kurihara et al.

U.S. Pat. No. 5917850 to Fujita et al.


U.S. Pub. No. 2002/0067784 to Bowler

U.S. Pat. No. 6546055 to Schmidl et al.

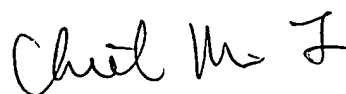
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jason M. Perilla
June 9, 2005

jmp


CHIEH M. FAN
PRIMARY EXAMINER